City of Chula Vista

Cost of Service and Rate Study for Sewer Services

October 2007

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Contents

Executive Summary

The City of Chula Vista (City) requested Camp Dresser & McKee (CDM) to conduct an update of the cost of service and rate study for sewer service. The purpose of the study is to evaluate the existing sewer rates, review and evaluate revenues and revenue requirements, and perform cost of service and rate analyses to ensure equity among customer classes. This report documents the results of the study and recommends sewer rates that the City should charge its customers in the study period.

Throughout this study, fiscal years will be termed as follows: Fiscal Year 2007-2008 is shown as FY 07-08, FY 2008, or just 2008 herein.

The objective of this report is to support development of fair and equitable rates that can be easily implemented and updated for the City's sewer system for the study period of FY 07-08 through FY 11-12 and a five-year financial plan that will secure financial stability of the sewer enterprise.

This financial plan was developed based on information that was readily available at this time (from both the City of Chula Vista and the City of San Diego). Since the City of Chula Vista receives wastewater treatment services from the City of San Diego Metropolitan Wastewater District (Metro) and those costs are a significant component of the fund's obligation, any major policy decisions (i.e., current consideration to upgrade the Point Loma treatment Plant from an advanced primary treatment plant to a secondary treatment plant) will definitely impact the financial plan. The City will have to re-evaluate the rates developed through this study should that situation or a similar situation with significant unanticipated financial impacts arise.

The sewer service fees collected by the City of Chula Vista are primarily used to maintain and operate the wastewater collection system and pay for the cost of wastewater treatment. In addition to the sewer service fee, users also pay a sewer facilities replacement fee and a storm drain fee as part of their monthly/bi-monthly service charge. However, the storm drain fee was not analyzed in this study. Revenues generated through the storm drain fee and sewer facilities replacement fee are later transferred into the Storm Drain Fund and Sewer Facilities Replacement Fund respectively.

We recommend the results of this study be used to make sewer rate adjustments effective this fiscal year and the next two years. Beyond that time frame, significant changes, such as potential cost increases from Metro, are likely to occur and a new analysis should be conducted.

Summary of Findings and Recommendations

1. The City is currently serving approximately 47,000 individual sewer customer accounts. The study anticipates continued increases in the number of sewer customers throughout the study period. The projected growth rate varies

depending on the customer category. Below are the annual percentage growth rates used for the various customers; the rates were based on the review of historical trends in the City within the last 2 years.

Table ES-1

Projected Growth by Customer Class

Customer Class	FY 08-09	FY 09-10	FY 10-11	FY 11-12
Single-Family Residential	1.15%	1.15%	1.15%	1.15%
Multi-Family Residential	1.0%	1.0%	1.0%	1.0%
Mobile Homes	1.0%	1.0%	1.0%	1.0%
Commercial Low	1.0%	1.0%	1.0%	1.0%
Commercial Medium	0.0%	0.0%	0.0%	0.0%
Commercial High	0.0%	0.0%	0.0%	0.0%
Special Users	0.0%	0.0%	0.0%	0.0%

2. Sewer utility revenues are principally derived from sewer service fees. Other revenue sources include industrial waste permits, miscellaneous fees, and interest income among others. The Operating Fund is currently self-supporting, although using existing reserve balances, and the proposed financial plan does not provide for any future transfers from any other sources.

3. The sewer utility's annual revenue requirements consist of operations and maintenance (O&M) expenditures, routine capital outlays, write-offs of uncollectible accounts, and transfers to the replacement fund and storm drain fund. O&M expenses, including capital outlays, are projected to increase from $29,455,400 in FY 07-08 to $34,118,600 in FY 11-12.

4. By definition, cost of service is the annualized revenue requirements net of revenue credits from other miscellaneous sources that need to be met through sewer rates. The City's estimated 2008 test year cost of service to be met from sewer rates totals $26,742,400. Revenue derived from charges for service under current rates is estimated to be $25,469,000 for FY 07-08 excluding revenues derived from Sewer Facilities Replacement Charges and Storm Drain Charges. Therefore, the adopted rates are inadequate and do not generate sufficient revenues to meet the revenue requirements.

5. Although not the subject of this rate study, also of note is the Sewer Utility Capital Improvement Program (CIP) which is projected to total $9,101,300 over the next five years - from FY 07-08 through FY 11-12. Projects include sewer replacements, and annual improvements to the sewer system. To finance the capital program, several funding sources are planned to be used, including sewer facility replacement fees, storm drain fees, sewer capacity charges, transfers from the General Fund, and existing fund balances in the capital funds. Consequently,

capital costs will be offset by other funding sources and hence do not affect this study

6. The purchase of additional Metro capacity is not included toward current CIP as negotiations are underway. A reserve has been created towards paying for additional capacity, but it will not be adequate, and additional debt may have to be issued to cover the remainder of capacity costs. This debt will be serviced by the Trunk Sewer Capital Reserve Fund and will not affect rates detailed in this report.

7. Required revenue increases throughout the study period are based on an analysis of the sewer utility's revenues and revenue requirements. Our analyses indicate sewer utility revenues will require the following increases for FY 07-08 through FY 11-12. There will be an initial 5.0% increase to the currently effective FY 07-08 rates and the subsequent rate increases will be in lieu of the previously adopted rate increases.

Effective Date	Adopted Rate Increases	Proposed Rate Increases
July 2005	7.5 Percent	
July 2006	7.5 Percent	
July 2007	7.5 Percent	
January 2008	-	5.0 percent
July 2008	3.5 Percent	9.9 percent
July 2009	3.5 Percent	9.9 percent
July 2010		3.5 percent
July 2011		3.5 percent

8. A cost of service approach is used to develop rates for sewer service. This means that customers are charged based on their proportional usage of facilities. The proposed rates are consistent with State Water Resources Control Board (SWRCB) guidelines and recognized rate industry standards as described in the Wastewater Environment Federation (formally Wastewater Pollution Control Federation) rate manual. Rates are set to recover the cost of service (maintenance, operation and treatment). Wastewater treatment costs are dependent on the quantity and quality of the effluent that is treated at the plant. In the San Diego Metro system, the quality of the effluent is measured by two components; chemical oxygen demand (COD) and total suspended solids (TSS). Consequently, rates are developed using uniform unit costs for volume, chemical oxygen demand (COD) and total suspended solids (TSS). These are applied to loadings and demands for service from each customer category. The resulting cost of service rate schedule is based on a uniform cost of service and recognizes different loadings for each customer class.

9. Based upon results from the detailed cost of service study for the FY 07-08 through FY 11-12 test years, the proposed schedule of sewer rates shown in Table

17 have been developed to recover the utility's cost in an equitable and practical manner from all customers served. The proposed rates have higher fixed charges and volume charges than the rates previously adopted and scheduled to go into effect. The rates currently scheduled to go into effect will not produce the necessary level of revenue.

10. Based on the findings of a recent City staff review of the historical records (i.e., findings of previous monitoring efforts, required improvements) and cost of the required improvements, it is recommended that the Sewer Facilities Replacement Fee be amended as follows: for all users the fee will be set at $0.18 per HCF. Single-family users will no longer be charged a flat fee of $1.97 and for multi-family/non-residential users the fee will be increased from $0.11 to $0.18 per HCF.

11. The average single-family residential (SFR) customer is estimated to have an average monthly water usage of 10 hundred cubic feet (HCF) or 120 HCF per year. Table 17 shows a comparison of typical SFR monthly sewer bills under the scenarios reviewed in this study.

    Briefly, the average household pays $34.30 per month under the existing rates. The rate structure changes proposed in this study incorporate cost of service restructuring and results in an average monthly FY07-08 SFR bill of $34.26. This means that a typical single-family residential customer will pay $0.04 per month less under the proposed rates than under the adopted rates due primarily to the reduction of the return factor as discussed below and the reduction of the sewer facilities replacement fee for residential users. Detailed charges for other SFR accounts with varying water usage are shown in Table 17.

12. Each customer class was assigned a return factor based on the average amount of water that is conveyed through the sewer system. In previous studies, single-family residential customers were billed as if 100 percent of the water entering their residence was returned to the sewer system. Some of the water used by single-family residential customers, even in winter, does not go back into the sewer system due to landscape irrigation and other outdoor uses. By comparing billed water flows to the sewer flows billed by Metro, the single-family residential customer class has been assigned a 90 percent return factor in this study reflecting the assumption that only 90 percent of water used will be conveyed through the sewer system. Therefore, a typical customer using 10 HCF of water will only be billed for sewer service based on a 90 percent return factor or 9 HCF. This reduction in billed volume is the reason for the reduction in the typical SFR bill.

13. The City of Chula Vista bills its customers in three different ways. Customers under Otay Water District's (Otay) jurisdiction are billed for water and sewer services monthly on the same bill by Otay. Customers in Sweetwater Authority's (Sweetwater) jurisdiction who reside in the pre-annexation area are billed for sewer services bi-monthly by the City's Finance Department. The remaining customers who are in the Montgomery area of the City who are in either Sweetwater's or CAL-American's jurisdiction are billed for sewer services

annually on the property tax bill by the City's Engineering & General Services Department. All these billing units had independent databases that were not linked. Ultimately the customer data, which was used in the 2005 study, was assembled from these databases. Through a recent audit of these systems, in preparation for this new study, it was determined that the baseline customer data used in the previous study was significantly higher than it should have been. Consequently, the revenue requirement was spread over more customers than ultimately existed, resulting in rates that were lower than they should have been, and lower revenue than projected.

14. In addition, just prior to the 2005 Study, the City of Chula Vista was experiencing an influx of new development, which seemed to be on track to continue for a significant amount of time. Unfortunately, shortly after the adoption of the rate plan, development peaked and went into a significant downturn, which seems inclined to continue for the next few years. That has ultimately impacted the revenues for the past two years. Consequently, the customer data used in this study is significantly different from the previous study. The updated data indicates that the projections of customer data (i.e., number of customers and billable flow) were significantly higher than what actually occurred, which further impacted the revenues. Therefore, the combination of the inadequate rates and the decline in the growth rate resulted in fewer paying customers, lower sewage volume, and consequently lower than expected revenue for the utility. Residential single-family growth has dropped from 5 percent to 1.15 percent. This has resulted in a decline in expected revenues of approximately $2 million in FY07-08 and some $17.5 million over the period analyzed. Had the baseline customer data been accurate, and had growth continued as previously predicted, the adopted rates would have been adequate to cover expenses.

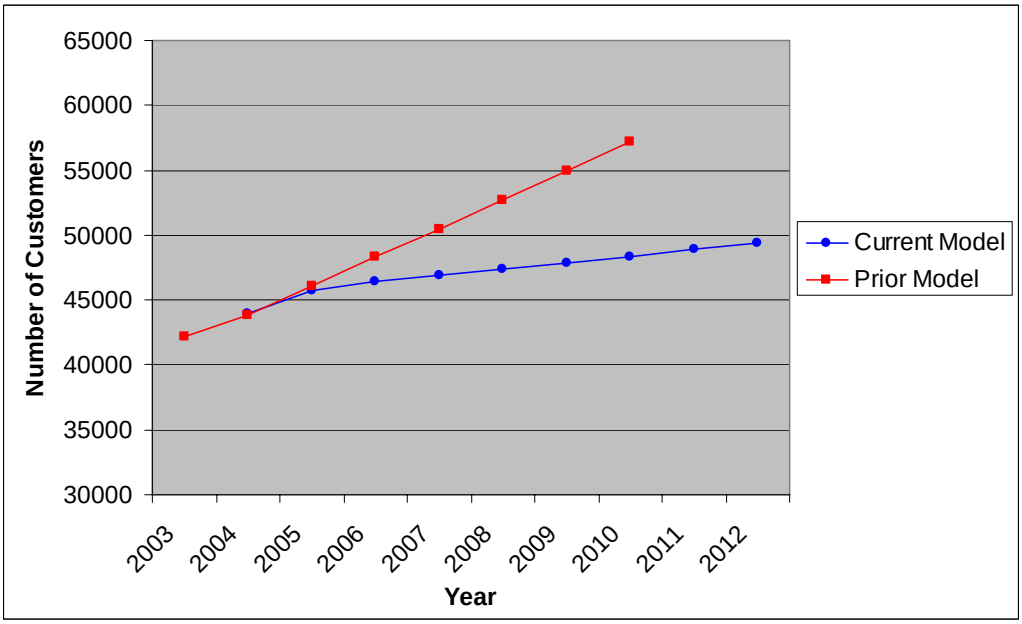


Figure ES-1 – Previous and Current Study Estimates – Number of Customers

15. As a result of not meeting revenue projections, expenses have exceeded revenues and operating reserves are declining. Figure ES 2 below illustrates the difference between current and previous study estimates. The lower line (red) reflects revenue estimates based on adopted rates from the previous study, and the higher line (green) reflects revenue estimates based on proposed rates for the current study.

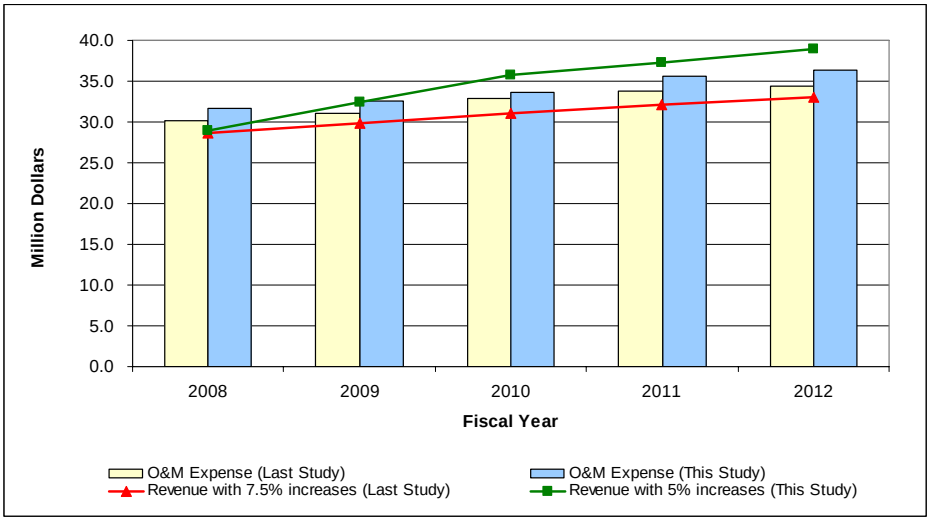


Figure ES-2 – Previous and Current Study Estimates - Revenues & Expenditures

16. Another important element that was taken into consideration in establishing the revenue requirements is the restoration of a healthy operating reserve balance. The study determined that with the projected revenue increases, reserves would be at minimal levels for the next two years but begin a steady process of returning to recommended levels after that. The indicated minimum reserve level has been set at a 90-day working capital balance, typical for utilities. That amount is roughly equivalent to the City's quarterly payment to Metro and also allows for an emergency reserve. Bond rating agencies indicate reserves closer to 180 days are typical for utilities with higher bond ratings.

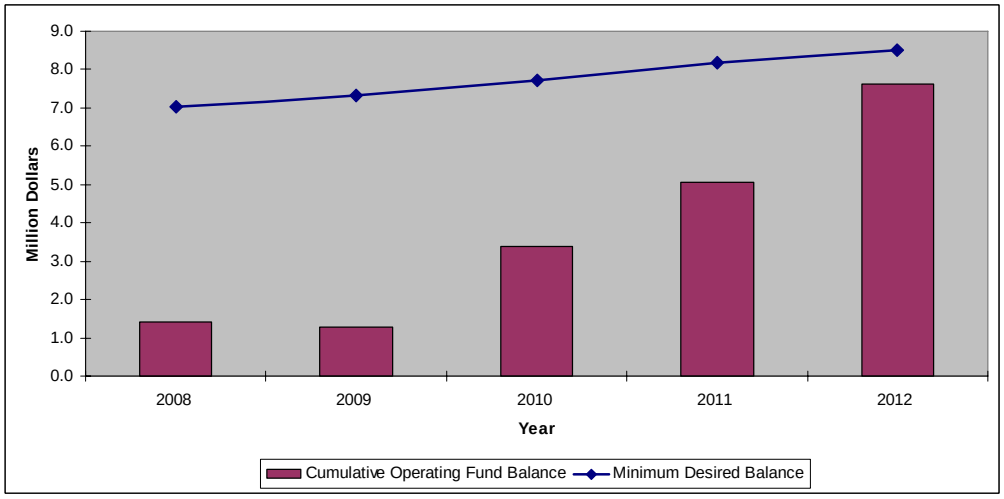


Figure 2 Target Reserves vs. Actual Reserve Balance

15. A 5 % mid-year increase in FY 07-08 will assure revenues will be adequate to meet expenses and start replenishing reserves. Due to Proposition 218 requirements, a lead-time of several months is needed to comply with all regulations. Consequently, rates are not anticipated to go into effect until December of 2007.

Proposed Rate Schedule

Shown below is a proposed rate schedule for the next five years. However, we recommend only rates to be effective January 1, 2008 and Fiscal Years 2008-2009 and FY 2009-2010 be approved at this time.

TABLE 16

Proposed Rate Schedule for Fiscal Years 2008 Through 2012

	2008	2009	2010	2011	2012
Meter	Monthly Service Charge (1)				
Size	$/month	$/month	$/month	$/month	$/month
Single-Family Residential	7.35	8.00	8.73	9.01	9.01
All Others					
5/8	6.65	7.30	8.03	8.31	8.31
3/4	6.65	7.30	8.03	8.31	8.31
1	11.08	12.17	13.38	13.85	13.85
1 1/2	22.16	24.35	26.76	27.70	27.70
2	35.45	38.96	42.81	44.31	44.31
3	66.47	73.05	80.28	83.09	83.09
4	110.78	121.74	133.79	138.48	138.48
6	221.55	243.48	267.59	276.95	276.95
8	354.48	389.57	428.14	443.13	443.13
	Volume Charge (1)				
	$/hcf	$/hcf	$/hcf	$/hcf	$/hcf
Residential					
Single-Family	2.99	3.27	3.57	3.69	3.82
Multi-Family	3.05	3.33	3.63	3.75	3.88
Mobile Homes	3.05	3.33	3.63	3.75	3.88
Non-Residential					
Commercial - Low	3.05	3.33	3.63	3.75	3.88
Commercial - Medium	4.13	4.52	4.94	5.10	5.27
Commercial - High	6.29	6.89	7.55	7.80	8.07
Special Users	2.98	3.33	3.63	3.75	3.88

(1) Includes the Sewer Facilites Replacement Fee and Storm Drain Fee

Typical Bills

The table below shows residential bills under proposed rates for various levels of winter periods water usage. The table recognizes that effective January 1, 2008 residential users will be assigned a 90% return factor to provide an allowance for winter period irrigation usages. Figure ES-3 shows the distribution of residential customers by usage levels from 1 hcf to 20 hcf. The figure shows that the average is not only 10 hcf but the largest number of users have a sewer bill based on 10 hcf.

TABLE 17

Comparison of Typical Single-Family Residential Monthly Sewer Bills

(1) Usage hcf/mo.	(2) FY 2008 Adopted Charge $	(3) FY 2008 Proposed Charge $	(4) FY 2009 Proposed Charge $	(5) FY 2010 Proposed Charge $	(6) FY 2011 Proposed Charge $	(7) FY 2012 Proposed Charge $
0	9.00	7.35	8.00	8.73	9.01	9.01
1	11.53	10.04	10.95	11.94	12.33	12.44
2	14.06	12.73	13.89	15.16	15.66	15.88
3	16.59	15.42	16.83	18.38	18.98	19.31
4	19.12	18.11	19.77	21.59	22.30	22.75
5	21.65	20.80	22.71	24.81	25.63	26.18
6	24.18	23.49	25.65	28.03	28.95	29.61
7	26.71	26.18	28.59	31.24	32.27	33.05
8	29.24	28.87	31.54	34.46	35.60	36.48
9	31.77	31.57	34.48	37.68	38.92	39.92
10	34.30	34.26	37.42	40.89	42.24	43.35
11	36.83	36.95	40.36	44.11	45.57	46.78
12	39.36	39.64	43.30	47.33	48.89	50.22
13	41.89	42.33	46.24	50.54	52.21	53.65
14	44.42	45.02	49.18	53.76	55.54	57.09
15	46.95	47.71	52.13	56.98	58.86	60.52
16	49.48	50.40	55.07	60.19	62.18	63.96
17	52.01	53.09	58.01	63.41	65.51	67.39
18	54.54	55.78	60.95	66.63	68.83	70.82
19	57.07	58.48	63.89	69.84	72.15	74.26
20	59.60	61.17	66.83	73.06	75.48	77.69

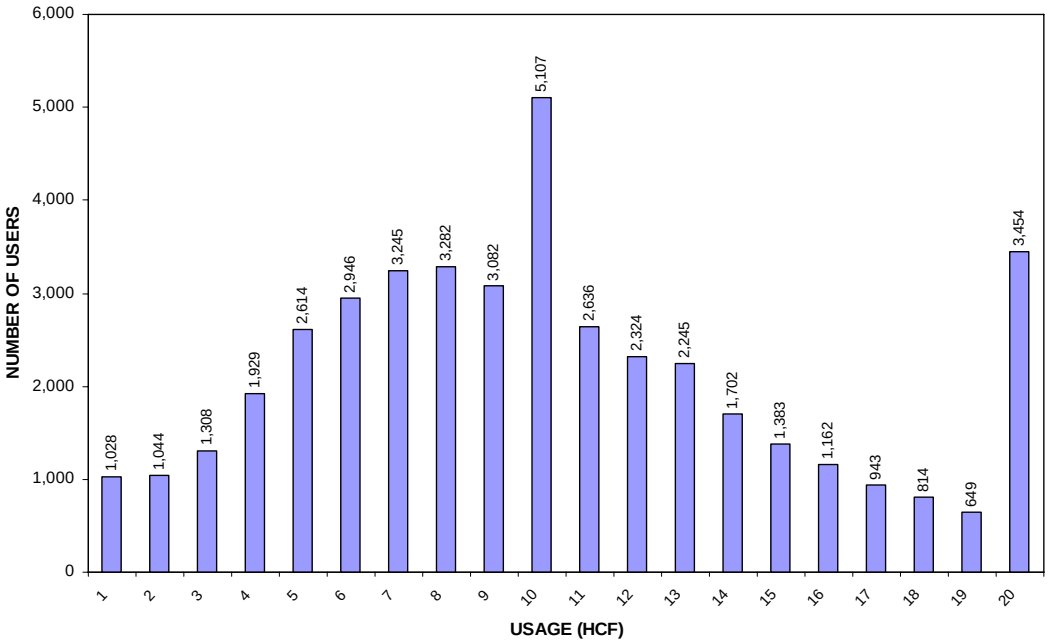


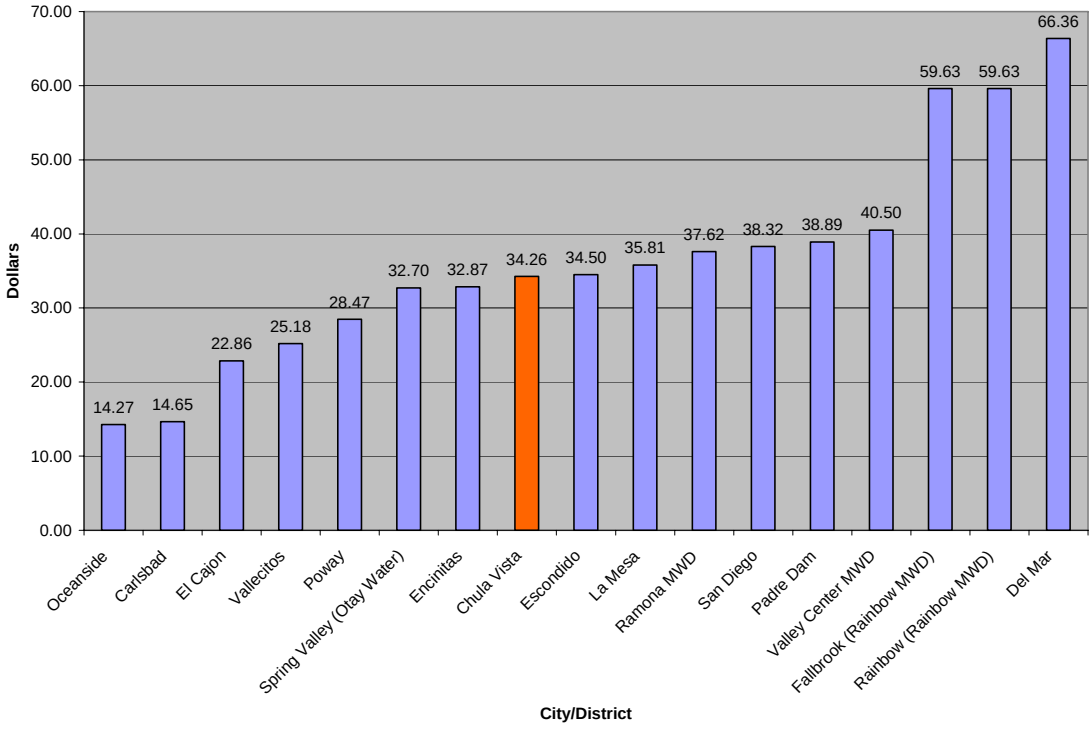
Figure ES-3- Distribution of Customers at Each Level of Usage[1,2]

[1] New customers who do not have a "winter usage history" are set up as "an Average" customer – 10 HCF.

[2] The City has a "Cap" of 20 HCF, therefore all customers who have a "winter average" of 20 HCF or above are billed for only 20 HCF.

Rate Comparisons

CDM performed a survey of wastewater charges in cities in San Diego County and the results are presented in Figure 3 below. The figure clearly shows rates in Chula Vista are on the low end in the County.



Section 1
Introduction

1.1 Background

The City of Chula Vista is the sewer and storm drain service provider to the residences and commercial enterprises in its service area. The city is located eight miles south of the city of San Diego and seven miles north of the Mexico border and covers approximately 50 square miles. The city has grown at a rapid pace, primarily due to new development on its eastern side in addition to in-fill development on the west. Recently growth has slowed, however.

Wastewater generated in the city is collected and sent to treatment facilities in Point Loma and South Bay operated by the City of San Diego Metropolitan Wastewater Department (Metro). The City is billed by Metro based on the wastewater flow and strength sent to these treatment plants.

In providing sewer service, the City incurs considerable expense related to the ongoing operating and capital needs of the utility. Operating and capital expenditures change annually because of the need for repairs and replacements to existing facilities, the need to improve service to meet more stringent state and federal environmental compliance requirements, and to stay abreast of inflationary trends. The City, in recognition of the importance of financially planning for the costs to replace, improve, and operate the sewer utility, has engaged Camp Dresser & McKee to perform a comprehensive update to the sewer cost of service and rate study performed in 2005.

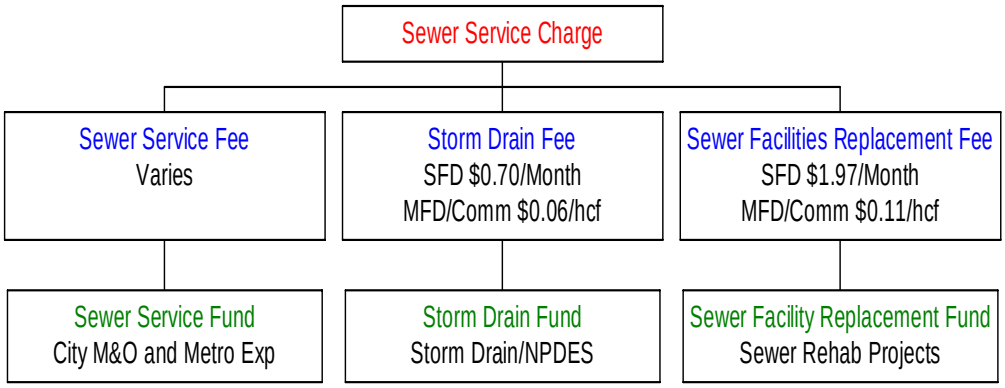
The City's priorities in the coming years include the acquisition of additional treatment capacity. The City is currently evaluating a variety of options for meeting this need, some of the options being considered include a.) purchase or lease of additional treatment capacity rights from a member agency or agencies in the Metro system, b.) construction of an independent wastewater reclamation facility or c.) facilitating the upsizing or acceleration of planned Metro treatment facilities to accommodate the City’s needs.

Although not part of this rate analysis given alternate funding sources, in addition, the City also has plans for on-going upgrades and improvements of its municipal sewer system. All these projects are included in the City’s five-year capital improvement program. A major challenge will be to balance the requirements of expanded infrastructure with available City revenues. All planned expenditures will need prioritization to assure that financial resources are used in the most effective way. The City will also conduct a level of service review to ensure that the level of service being provided is optimized and that available resources are used judiciously.

Sewer Service Charge

The City of Chula Vista's current Sewer Service Charge is made up of three different fees; the Sewer Service Fee, the Storm Drain Fee and the Sewer Facilities Replacement Fee as illustrated in the diagram below. Consequently, revenue generated by the City's Sewer Service Charge is distributed between three separate funds. These separate fees and funds are detailed as follows:

Sewer Fees Relationship Diagram



The Sewer Service Fee

This fee is comprised of two parts and is the focus of the study. There is a fixed monthly fee paid by all users and a variable fee based on water consumption. The fixed monthly fee is based on water meter size and currently ranges from $6.33 to $337.60 per month. For the variable portion of the fee, residential and low-strength commercial customers are charged $2.53 per Hundred Cubic Feet (HCF). Medium- and high-strength commercial customers are charged $3.38 and $5.12 per HCF respectively; while special user charges are individually calculated for each customer.

Sewer Service Revenue Fund – (Fund 41410)

Revenues derived from Sewer Service Fees are deposited into the Sewer Service Revenue Fund. Funds in the Sewer Service Revenue account are used solely for the purposes of maintaining and operating the municipal wastewater collection system, any collection costs and wastewater treatment charges by the City of San Diego Metropolitan Wastewater. Maintenance and operation is as dictated in Municipal Code Section 3.20. This fund is considered the operating fund for purposes of this study and will be discussed in detail later in the report.

Storm Drain Fee

While not part of this rate review, information regarding this fee is provided to increase understanding of customer billing. This fee recovers a portion of the cost of maintenance and operation of the storm drain system through two types of fees. Single-family customers are charged a flat monthly fee, which is currently $0.70 per month. All other customers are charged a monthly fee based on water consumption that is currently $0.06 per HCF. This fee is collected as part of the monthly sewer

service charge. Since this fee was established in 1991, the fee has never been increased due to the constraints of Proposition 218. Consequently, the fee does not generate sufficient revenues to meet the obligation of the fund.

Storm Drain Fund (Fund 30110)

Revenues in the Storm Drain Fund are derived from Storm Drain Fees paid by all users for the operation and maintenance of the City's Storm Drain System including underground drainage systems channels and ditches. Also competing for this limited fund source are costs associated with complying with the requirements of the National Pollutant Discharge Elimination System (NPDES). Because fee revenue is not sufficient to meet budgetary requirements, the general fund currently subsidizes storm drain activities. Details of the Storm Drain Fund are shown in the table below.

Storm Drain Fund

Description	2008	2009	2010	2011	2012
	$	$	$	$	$
Source of Funds					
Funds on Hand at Beginning of Year	(374,200)	(566,500)	(753,100)	(934,000)	(1,109,100)
Storm Drain Fees (Transfer from Operating)	546,205	551,904	557,653	563,444	569,332
Permit Fees	400,000	400,000	400,000	400,000	400,000
Total Funds Available	572,005	385,404	204,553	29,444	(139,768)
Use of Funds					
Fees and Services	342,100	342,100	342,100	342,100	342,100
Transfer to GENERAL FUND	343,700	343,700	343,700	343,700	343,700
Transfer to REPLACEMENT FUND	179,726	179,726	179,726	179,726	179,726
Other Transfers Out	273,000	273,000	273,000	273,000	273,000
Total Use of Funds	1,138,526	1,138,526	1,138,526	1,138,526	1,138,526
Funds on Hand at End of Year	(566,521)	(753,122)	(933,973)	(1,109,082)	(1,278,294)

[1] Interest on available storm drain fund computed at a 3.5% annual interest rate

Sewer Facilities Replacement Fee:

This fee is not the subject of the CDM study however an internal review has resulted in recommendations outlined below. This recovers the cost of sewer rehabilitation and replacements through two types of fees. Single-family customers are currently charged a flat monthly fee, which is currently $1.97 per month. All other customers are charged a monthly fee based on water consumption that is currently $0.11 per HCF.

Based on the findings of a recent City staff review of the historical records (i.e., findings of previous monitoring efforts, required improvements) and cost of the required improvements, it is recommended that the fee be amended as follows: for single-family residential users the flat monthly fee of $1.97 will be removed. Under the proposed rate schedule, all users, including single-family, multi-family and non-residential users, will be charged $0.18 per HCF.

Sewer Facilities Replacement Fund (Fund 42800)

Revenues in the Sewer Facilities Replacement Fund are derived from Sewer Facilities Replacement Fees paid on a monthly basis by all users connected to the City's wastewater collection system. This fund is primarily used for the replacement and rehabilitation of deteriorating municipal facilities. This fee is collected on a monthly basis with the Sewer Service Charge. Details of the Sewer Facilities Replacement Fund are shown in the table below. The table reflects the proposed changes in the Fees.

Sewer Facility Replacement Fund – 42800

Line No.	Description	2008	Fiscal Year Ending June 30 2009	2010	2011	2012
		$	$	$	$	$
	Source of Funds					
1	Funds on Hand at Beginning of Year	3,382,608	1,689,548	1,781,406	1,884,944	2,000,262
2	Connection Fees	0	0	0	0	0
3	Sewer Facility Replacement Fees	1,392,368	1,406,632	1,421,013	1,435,491	1,450,228
4	Transfer in from Loan Payments	179,726	179,726	179,726	179,726	179,726
5	Interest Income	205,358	60,700	64,200	68,000	72,200
6	Total Funds Available	5,160,060	3,336,606	3,446,344	3,568,162	3,702,415
	Use of Funds					
7	Major Capital Improvements [2]	3,321,300	1,400,000	1,400,000	1,400,000	1,400,000
	Bond Reserve Account Requirement	0	0	0	0	0
8	Automotive Equipment	0	0	0	0	0
9	Transfer out to Sewer Service Rev	149,212	155,200	161,400	167,900	174,600
10	Transfer out to General Fund					
11	Total Use of Funds	3,470,512	1,555,200	1,561,400	1,567,900	1,574,600
12	Funds on Hand at End of Year	1,689,548	1,781,406	1,884,944	2,000,262	2,127,815

[1] Interest on available capital funds computed at a 3.5% annual interest rate.
[2] Shown on Table 3 as funding source "R".

1.2 Purpose

The purpose of this sewer rate study is to:

- Review and analyze the City's historical data and project future requirements and resulting revenue needs ;
- Plan for financing of the municipal capital improvement program proposed by the City;
- Meet the financial requirements of system improvements;
- Analyze the cost of providing service by customer class;
- Develop an equitable sewer rate structure based on proper customer classification;

- Design sewer rates based on cost of service, which will generate adequate revenues to support revenue requirements.

1.3 Scope of the Study

This 2007 update to the 2005 rate study includes three phases: Financial Planning, Cost of Service Analysis, and Rate Design.

- **Financial Planning:** Revenue requirements are projected for a five-year period from FY 07-08 through FY 11-12. Financial planning involves estimation of annual O&M and capital expenditures, inter-fund transfers, annual reserve requirements, operating and capital revenues, and the determination of required annual sewer service revenues from rates and charges.

- **Cost of Service:** Cost of service involves the apportioning of annual revenues required from rates to the different user classes in proportion to their demands on the sewer system.

- **Rate Design:** Rate design involves the development of a fixed and variable schedule of sewer rates for each of the different user classes to reflect the required revenue adjustments made during the financial planning phase.

This report includes six sections besides the Executive Summary and the Introduction. Sections 2 through 7 present study results. These sections discuss in detail the financial planning phase, cost of service analysis, and rate design phase.

Section 2
Revenue

Revenue for the sewer utility is derived from sewer service charges, industrial waste permits, miscellaneous revenues, and interest income from operations. This section provides a description of those revenue sources.

2.1 User Classifications and Customer Growth

The level of future revenue from user fees the City can expect to receive is a function of the number of customers served, the quantity of sewer flow, and the level of current rates. Development of projected revenues under existing rates provides the benchmark upon which to evaluate the need for revenue adjustments throughout the five-year study period.

Seven classes of customer are recognized. They include single-family, multi-family, mobile homes, low-strength commercial, medium-strength commercial, high-strength commercial and special users (high-volume users and variance accounts). The study assumes modest future growth in the City service area. Table 1 shows the projected number of customer accounts, wastewater flow, and revenue assuming existing rates for FY 07-08 to FY 11-12.

TABLE 1

Projected Number of Accounts, Volume, and Revenue

Fiscal Year Ended June 30	Average Number of Accounts	Total WW Volume hcf	Revenue Under Existing Rates $
2007	47,020	8,172,900	23,526,500
2008 (1)	47,550	8,256,900	25,469,000
2009 (1)	48,080	8,342,200	25,730,200
2010 (1)	48,620	8,428,100	25,993,700
2011 (1)	49,170	8,514,700	26,259,200
2012 (1)	49,720	8,602,800	26,529,000

(1) Projected revenue under adopted FY 07-08 rates.

The City of Chula Vista also provides a low-income rate, which is 70% of the single-family residential adopted rate. This rate is available to single-family residential users who meet the City's income requirements for "low-income status." The City uses the Federal Department of Housing and Urban Development's (H.U.D) guidelines as a basis of approval.

2.2 Billing Method

The City strives to establish sewer rates that are fair and equitable, so the billing method for each user class is designed to match its estimated cost of service. Rates have been designed to recover fixed costs of maintenance and operation of the system, which is more dependent on the size of the collection system than on the amount of flow in the system. The rates also recover variable costs for wastewater treatment, which is based on the quantity and quality of the treated sewage. Consequently, users pay a sewer service charge that is made up of two components: a fixed service charge and a variable commodity charge. Together these two components comprise the customer's total Sewer Service Charge.

Fixed Service Charge: This charge applies to all users including residential, commercial & industrial, and institutional users. Based upon meter size, the charge allows the City to break out and recover the fixed costs of service that the City incurs irrespective of the amount of flow that goes through the system (e.g., billing and administrative costs, certain portions of the maintenance costs and debt service).

Commodity Charge: This charge varies and is dependent on the amount of wastewater discharges (as measured by water used) and the user's strength classification

Monthly Sewer Service Fee: Fixed Service Charge + Commodity Charge

Commodity Charge: (Sewer Rate x Rate of Return x Water Used)

The Rate of Return is the percentage of the amount of water used by a user that is ultimately discharged into the wastewater collection system.

Single-Family Residential Users

Single-family residential customers - These customers pay a uniform monthly fixed service charge based on meter size (assumed to be 5/8^{ths} inches for all single-family residential customers -SFR). The fee is currently $6.33/month exclusive of storm drain and sewer facilities replacement fees. In addition, variable commodity charge based on water consumption is paid. The City of Chula Vista uses a customer's "Winter Average" to set their sewer service fee for the fiscal year. This concept is explained in greater detail below.

Winter Water Usage Approach

In July 2003, the Chula Vista City Council approved a major change in the way the Sewer Service Charge is determined for single-family homes. The structure was changed from a flat-fee structure where all homes paid the same fee, to a consumption-based structure, which was based on the amount of water used which typically correlates to the amount of sewage generated. Under this new structure, the sewer service charge is determined by using the lowest average water consumption of two consecutive winter months; the winter months are the six months from

November through April. The underlying assumption being that most customers significantly reduce or turn off irrigation sprinklers during the winter season. Therefore, the water consumption during that period generally correlates to the amount of sewage discharged, hence the use of this data as the basis of the rates.

A previous analysis of the City's sewer customer billing data indicated that the City's current approach of billing single-family residential customers the lowest two months of water usage is a fair and equitable method and is used by a majority of large utilities in the United States. However, since a significant number of customers seem to continue to use water outside the home even in the lowest use winter months, it is therefore appropriate to bill for less than the total amount of the water used during the winter period. A 90 percent return to sewer factor (return factor) is used to develop the proposed rates shown in this report as compared to the previous rate study which utilized a 100 percent return factor. This reduced return factor is validated by a mass balance calculation of billed sewer volume conveyed to Metro and customer billed estimates.

In addition, the City also has a cap on billable flow for single-family residential customers. Based on the findings of a previous study, the City adopted a cap of 20 HCF. That means that single-family residential customers are capped at 20 HCF per month. The cap was put in place to avoid charging single-family residential customers for any residual irrigation usage that may have occurred during the winter period. The study determined that with a 90% rate of return and a cap of 20 HCF for single-family residential customers and an appropriate rate of return for all other user classes, the total amount of billable flow approximately equals the amount of flow treated at the plant ("mass balance").

Multi-Family Users

Multi-family users pay a fixed service charge based on the meter size and a variable commodity charge that is calculated either of two ways:

a. If the individual units do not have their own meters, then the entire complex is billed as a multi-family location on a "Master Meter" with a rate of return of 79% (84% for Mobile Homes).

b. If each unit has its own individual meter, it is billed as single-family home (i.e., based on winter average).

Commercial Users

Commercial users also pay a fixed service charge based on their meter size and a variable commodity charge that is based on the strength classification of the user. Commercial users are classified as low-strength, medium-strength or high-strength users. In addition, the billable flow for commercial users assumes a rate of return of 90% of water consumed.

Special Users

There are two types of special users: High-Volume Users and Variance Accounts are both discussed in greater detail below.

High-Volume Users:

The State Water Resource Control Board guidelines for agencies establishing revenue programs such as this require that commercial and industrial customers who discharge over 25,000 gallons per day (gpd) of wastewater have their sewer service charges determined individually based on flow as well as Chemical Oxygen Demand (COD) and Total Suspended Solids (TSS) or estimated strength.

The City currently has seven (7) accounts in this classification.

Prudential Overall Supply
Scripps Hospital
Sharp Medical Center
County of San Diego
Fredericka Manor
Laura Smith
B.F. Goodrich

Sewer Variances

The City also has customers who have been granted special rates based on other criteria because their recorded water usage did not reflect sewage discharged. In accordance with the provisions of Chula Vista Municipal Code, these customers pay processing fees and go through an application process where each component of their sewer discharge is investigated and a special rate based on cost of service is determined by staff. The City currently has 11 accounts in this classification.

Duke Energy
First Church of Christ
Sweetwater Union High School
Canyon Community Church
Inland Industries
Ecology Auto Parts
Paseo Del Rey Church
CV Elementary Schools
Southwestern College
Santa Fe Tortilleria
Otay Landfill

2.3 Existing Sewer Rates

The existing rate schedule is presented below in Table 2.

TABLE 2

Existing Sewer Rate Schedule

FY 2008

	Monthly Service Charge $/mo
Single-Family Residential	9.00
All Others	
5/8	9.00
3/4	9.00
1	13.22
1 1/2	23.77
2	36.43
3	65.97
4	108.17
6	213.67
8	340.27
	Volume Charge $/hcf
Residential	
Single-Family	2.53
Multi-Family	2.53
Mobile Homes	2.53
Non-Residential	
Commercial - Low Strength	2.53
Commercial - Medium Strength	3.38
Commercial - High Stength	5.12
Special User	Varies

In addition to the Sewer Service Fees, all users pay a Sewer Facilities Replacement fee and a Storm Drain Fee, which are all integrated, into the monthly Sewer Service Charges. All SFR customers are currently charged $1.97 a month, while MFD/Commercial customers are billed $0.11/HCF. SFR customers are billed a storm Drain Fee of $0.70 a month while MFD/Commercial are billed $0.06/HCF.

2.4 Sewer Service Fee Revenue Under Existing Rates

Revenue for financing the City's sewer system is derived principally from sewer service charges. Other revenues are received from miscellaneous revenues and interest income.

2.4.1 Revenue Under Existing Rates

Revenue under existing rates is obtained by applying the current rate schedule, shown in Table 2, to the projected number of customers served by the City and estimated wastewater flow. Table 1 shows that the City will collect approximately $25,469,000 in FY 07-08 for sewer services, excluding Storm Drain Charge and Capital Facilities Charge revenues.

2.4.2 Other Revenues

Other revenue sources include industrial waste permits; pump station maintenance fees, reimbursements, and miscellaneous revenue. Total revenue from these sources is estimated to be approximately $393,100 in FY 07-08.

2.4.3 Interest Income

Interest income varies from year-to-year depending on the investment of available monies in the Sewer Operating Fund. Investment income projections are based on available fund balances using an average annual interest rate of 3.5 percent throughout the study period. Estimated interest income for FY 07-08 totals $121,700.

Section 3
Capital Improvement Program

The City has developed a sewer utility capital improvement program (CIP) to address municipal sewer systems need in terms of projects necessary to bolster and reinforce its existing infrastructure facilities. A summary of the sewer capital improvement program, which reflects the planned expenditures for each year during the study period, is shown in Table 3. The program is estimated to total $9,101,300 for FY 07-08 through FY 11-12; however, there are projects that may be carried over from FY 06-07. Sewer projects include the purchase of additional Metro capacity, sewer replacements, and annual upgrades and improvements to the sewer system.

Since these capital costs are not going to be funded from the operating fund directly, they are provided for informational purposes only and will not affect rates

TABLE 3

Proposed Major Capital Improvement Program

Line No.	Description	Funding Source (1)	Fiscal Year Ending June 30					
			2008	2009	2010	2011	2012	Total
			$	$	$	$	$	$
1	**Sewer Facility Replacement Fund**							
2	GIS-Orthophotography/Topography	R	17,000					17,000
3	G St Pump Station Improvements	R	(1,000,000)					(1,000,000)
4	Sewer Rehabilitation FY05-06	R	(100,000)					(100,000)
5	Sewer Rehabilitation FY06-07	R	(187,473)					(187,473)
6	Inflow and Infiltration Study	R	174,300					174,300
7	G St Sewer between 2nd and 4th	R	1,750,000					1,750,000
8	C St Sewer between 4th and 5th	R	600,000					600,000
9	Garrett St Sewer between Davidson & E S	R	480,000					480,000
10	Civic Center Renovations-Phase 3	R	80,000					80,000
11	Sewer Rehabilitation FY 07-08	R	1,507,473					1,507,473
12	Future Sewer Rehabilitation	R	0	1,400,000	1,400,000	1,400,000	1,400,000	5,600,000
								0
13	**Trunk Sewer Fund**							0
14	Main St between Hilltop and Fresno	T	30,000					30,000
15	**Special Sewer Fund**							0
16	CIP Mgmt and Equip Purchase	SP	50,000					50,000
17	CIP Advanced Planning	SP	100,000					100,000
18	**Total**		3,501,300	1,400,000	1,400,000	1,400,000	1,400,000	9,101,300

(1) SD = Storm Drain Fund, T=Trunk Sewer Capital Reserve Fund, R = Replacement Fund, O= Operating Fund, SP= Special Sewer Fund

Section 4
Revenue Requirements

Revenue Requirements of the utility consist of operation and maintenance expenses and annual capital costs. The latter includes debt service, which the utility currently does not have, and routine capital outlays for equipment replacements.

4.1 Operations and Maintenance Expense

Operation and maintenance (O&M) expense includes the cost of operating and maintaining sewer collection, treatment and disposal of wastewater, and maintenance of system facilities. Expenses include the cost of personnel, utilities (gas and electric), chemicals, and miscellaneous materials and supplies to operate the sewer system on a routine basis. Expenses also include payment to the General Fund for overhead costs. Since O&M costs are an ongoing annual obligation of the City, they must be met from sewer service charge revenue.

Table 4 presents a summary of the projected O&M expenses for the City's sewer system. The forecasted expenditures are based upon the City's budget and the effect of inflation in future years. Total operation and maintenance expense, including capital outlay, is projected to increase from $29,455,400 in FY 07-08 to $34,118,600 in FY 11-12. The Metro and Spring Valley costs shown on Lines 11 and 12 include both O&M and capital costs.

TABLE 4

Operations and Maintenance Expense

No.	Description	Fiscal Year Ending June 30				
		2008	2009	2010	2011	2012
		$	$	$	$	$
	WW Support Services					
1	Wastewater Engineering	541,900	552,800	563,600	574,700	586,000
2	WW Operations Admin	147,600	150,700	153,700	156,800	159,900
3	WW Maintenance	3,590,400	3,864,579	3,937,900	4,012,600	4,088,600
4	Lift Station/Pool Maint.	570,800	582,300	594,000	605,900	618,000
5	Sewer Billing and Collection	116,300	119,300	122,200	125,300	128,500
6	Sewer Service Supplies and Services	112,700	115,100	117,400	119,700	122,000
7	Sewer Service Risk Management	50,100	51,600	53,100	54,700	56,300
8	Transfer to General Fund	4,587,700	4,679,400	4,773,000	4,868,500	4,965,900
9	Transfer to 03 Refunding COP	21,000	21,500	21,900	22,300	22,700
10	**Total WW Support Services**	9,738,500	10,137,279	10,336,800	10,540,500	10,747,900
11	Metro Cost	17,273,300	18,381,000	20,005,000	21,437,600	22,509,500
12	Spring Valley	736,200	412,200	134,800	320,000	280,300
13	Other Professional Svcs.	50,600	52,100	53,700	55,300	57,000
14	Otay Water District Processing	356,000	366,700	377,700	389,000	400,700
15	**Total O&M Expense***	28,154,600	29,349,279	30,908,000	32,742,400	33,995,400
16	**Capital Outlay**	1,300,800	926,000	423,400	605,400	123,200
17	**Total O&M Expense**	29,455,400	30,275,279	31,331,400	33,347,800	34,118,600

* - Total excludes Capital Outlay

4.2 Debt Service Requirements

The City currently does not have any existing outstanding bond indebtedness.

4.3 Transfer of Revenues to the Sewer Facilities Replacement Fund

As part of the sewer service charge, a sewer facilities replacement fee of $1.97 per dwelling unit per month is currently charged to residential customers. Non-residential customers are currently charged $0.11 per HCF of water usage but in no case less than $1.97 per meter. The rates will change to $0.18 per HCF for all users effective January 1, 2008. Total revenues collected will be transferred to the Sewer Facilities Replacement Fund.

4.4 Transfers of Revenues to the Storm Drain Fund

Similar to the sewer facilities replacement fee, the City also has a storm drain fee of $0.70 per single-family dwelling unit per month. Non-residential customers are charged $0.06 per HCF of water usage per meter. It is anticipated that the Operating Fund will make a series of transfers to the Storm Drain Fund matching revenues collected.

4.5 Bad Debt Write-offs

This study assumes bad debt write-offs of $300,000 annually based on historical trends. The majority of the write-offs are from customers in the pre-annexation area of the City who are billed by the City's Finance Department. Since the sewer billing is not done in conjunction with the water bill, the City does not have the ability to shut-off water service in order to collect these bills.

4.6 Routine Capital Outlays

Routine capital outlays, which are financed from annual system earnings, include estimates for vehicle replacements, a new vactor truck, and other additions and replacements to system equipment.

4.7 Otay Water District Billing and Collection Charges

A portion of the City (primarily east of I-805) is billed for sewer service by the Otay Water District ("Otay"). Otay bills the City on a per account basis for providing this service. It is currently estimated that Otay will bill the City an average of $390,000 over the next 5 years. While this amount is quite significant, there are several benefits associated with this arrangement. For example since the sewer bill is collected with the water bill, the City has a low "bad debt" percentage for customers in that area compared to the other areas where the City does not have a similar arrangement and has less leverage to deal with delinquent accounts.

Section 5
Cash Flow Analysis

5.1 Proposed Revenue Adjustments

To provide for the continued operation of the sewer utility on a sound financial basis, revenue must be sufficient to meet revenue requirements. This section of the report analyzes the revenue increases needed to meet future revenue requirements.

The pro forma operations statement or cash flow summary presented in Table 5 provides a basis for evaluating the timing and level of sewer revenue increases required to meet the projected revenue requirements during FY 07-08 through FY 11-12. In order to meet projected revenue requirements and to maintain desired operating and capital reserve fund balances, the following increases are proposed:

Effective Date	Increases
January 1, 2008	5.0 percent
July 1, 2008	9.9 percent
July 1, 2009	9.9 percent
July 1, 2010	3.5 percent
July 1, 2011	3.5 percent

The magnitude of the increases shown above has been selected in order for total sewer revenue to meet revenue requirements and avoid transfers from any other funds, so that the Sewer Service Revenue fund can remain self-supporting. Estimated sewer revenue under existing rates is shown on Line 1 of Table 5. The annual revenue shown is the same as in Table 1. Additional operating revenues from any proposed rate increases are shown on Lines 2 through 7. Other revenues and interest income are shown on Lines 10 through 15.

Operation and maintenance expenses, transfers to other funds, and bad debt write-offs are shown on Lines 18 through 24. Line 19 shows the transfers to the Sewer Replacement Fund and Line 20 presents the transfers to the Storm Drain Fund scheduled for each year.

The cash flow indicates the recommended revenue increases will be sufficient to meet all the needs of the utility throughout the study period with the proposed 5.0 percent increases effective January 1, 2008; 9.9 percent for the second and third; and 3.5 percent after that. It is anticipated that the Operating Fund will be self-sufficient and no transfers from any other sources will be necessary although reserves are currently being used to meet revenue requirements. Table 5 shows that annual fund balances will remain positive but below a minimum desired balance defined as 90 days O&M.

TABLE 5

Operating Fund Flow of Funds

Line No.	Description			Fiscal Year Ending June 30 2008 $	2009 $	2010 $	2011 $	2012 $
	Revenue:							
1	Wastewater Service Charges Under Existing Rates			25,469,000	25,730,200	25,993,700	26,259,200	26,529,000
	Additional Service Charge Revenue Required:							
	Year	Revenue Increase	Months Effective					
2	2008	5.00%	6	636,700	1,286,500	1,299,700	1,313,000	1,326,500
3	2009	9.90%	12		2,674,700	2,702,000	2,729,600	2,757,700
4	2010	9.90%	12			2,969,500	2,999,900	3,030,700
5	2011	3.50%	12				1,165,600	1,177,500
6	2012	3.50%	12					1,218,700
7	Total Additional Service Charge Revenue			636,700	3,961,200	6,971,200	8,208,100	9,511,100
8	Total Wastewater Service Charge Revenue			26,105,700	29,691,400	32,964,900	34,467,300	36,040,100
9	Other Revenues			393,100	393,100	393,100	393,100	393,100
10	Facilitites Replacement Charge Revenue			1,392,400	1,406,600	1,421,000	1,435,500	1,450,200
11	Storm Drain Charge Revenue			546,200	551,900	557,700	563,400	569,300
12	Reimb - CIP Projects			100,000	0	0	0	0
13	Transfer In from Swr Facility Repl			149,200	155,200	161,400	167,900	174,600
14	Interest Income From Operations [1]			121,700	42,100	76,500	142,700	216,500
15	Interest Income From Restricted Reserves [1]			0	0	0	0	0
16	Reimbursement from General Fund			150,000	150,000	150,000	150,000	150,000
17	Total Operating Revenues Available			28,958,300	32,390,300	35,724,600	37,319,900	38,993,800
	Revenue Requirements:							
18	Operation and Maintenance Expense			28,154,600	29,349,279	30,908,000	32,742,400	33,995,400
	Debt Service							
19	Transfer to Replacement Fund			1,392,400	1,406,600	1,421,000	1,435,500	1,450,200
20	Transfer to Storm Drain Fund			546,200	551,900	557,700	563,400	569,300
21	Transfer Out to Other Funds			0	0	0	0	0
22	Bad Debt Write-Offs			300,000	300,000	300,000	300,000	300,000
23	Routine Capital Outlay			1,300,800	926,000	423,400	605,400	123,200
24	Total Revenue Requirements			31,694,000	32,533,779	33,610,100	35,646,700	36,438,100
25	Net Operating Funds Available			(2,735,700)	(143,479)	2,114,500	1,673,200	2,555,700
26	Beginning Operating Fund Balance			4,163,000	1,427,300	1,283,821	3,398,321	5,071,521
27	Cumulative Operating Fund Balance			1,427,300	1,283,821	3,398,321	5,071,521	7,627,221
28	Minimum Desired Balance [2]			7,038,700	7,337,300	7,727,000	8,185,600	8,498,900

[1] Estimated based on 3.5% interest rate.
[2] Estimated at 90 days of operation and maintenance expense.

However, the fund balance grows over the five-year plan period. This minimum desired balance is considered a reasonable working capital balance for a wastewater utility and is a target that can be used to justify higher bond rating.

Figure 1 shows a graphical summary of the revenue under the proposed rates with revenue requirements. The figure indicates that revenue under the proposed rates is not sufficient to cover operation and maintenance and capital expenses for FY 07-08 and that drawdown of reserves will be necessary. However, no appreciable draw downs are anticipated in FY 08-09 through FY 11-12 once the Operating Fund becomes self-sufficient.

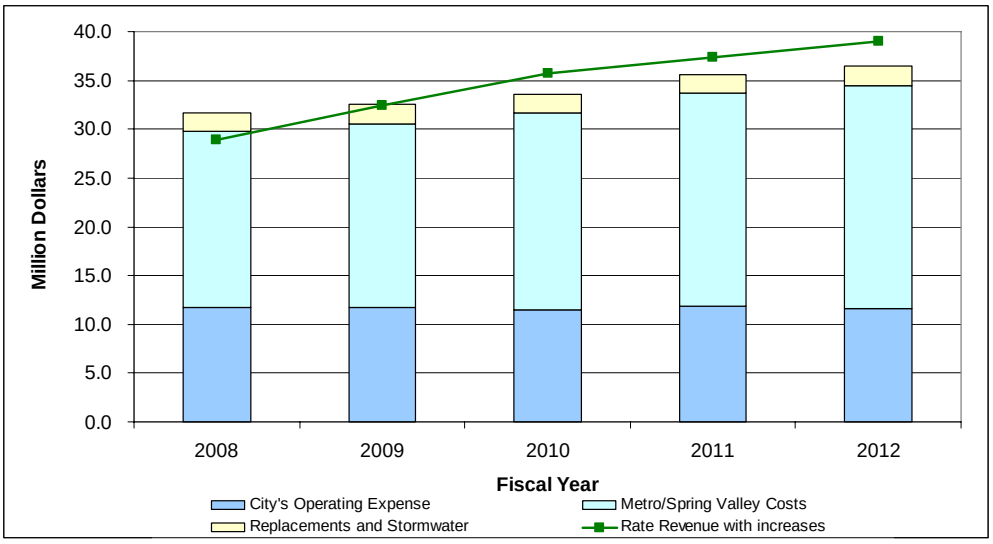


Figure 1 Sewer Operating Fund Summary

Figure 2 below shows the projected reserve balances against the desired level of reserves. The figure shows that with the projected revenue increases reserves will be at minimal levels for the next two years but begin a steady process of returning to recommended levels after that.

Maintaining adequate reserves is critical to the successful financial operation of an enterprise activity such as the Sewer Fund. The indicated minimum reserve level has been set at a 90 day working capital balance, typical for utilities. That amount is roughly equivalent to the utility's quarterly payment to Metro and also allows for an emergency reserve. Bond rating agencies indicate reserves closer to 180 days are typical for utilities with higher bond ratings.

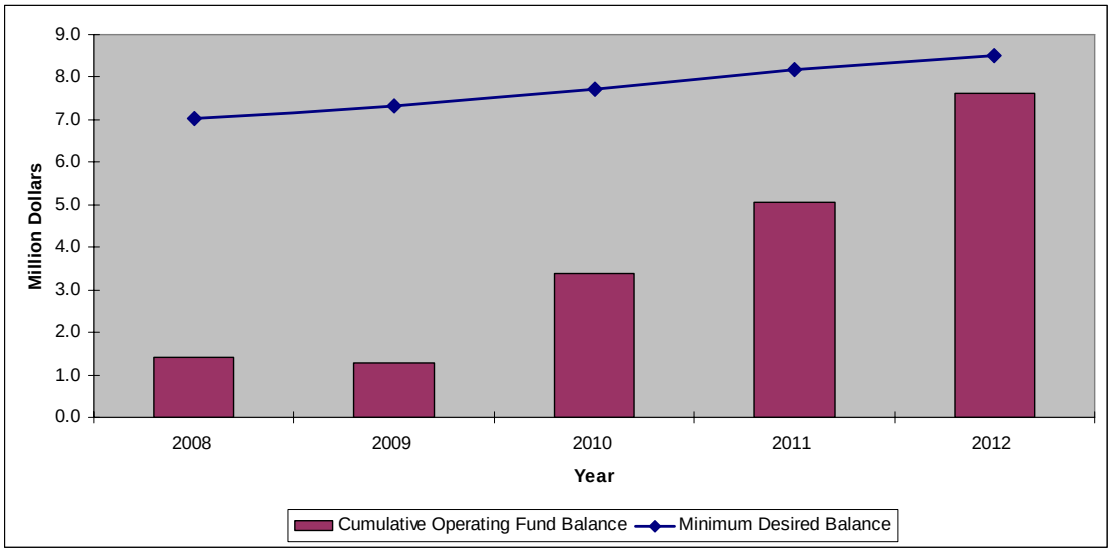


Figure 2 Target Reserves vs. Actual Reserve Balance

Section 6
Cost of Service Analysis

The cost of service analysis is a critical element in a rate study. The total revenue requirements net of revenue credits from miscellaneous sources, is by definition, the cost of providing service. This cost of service is then used as the basis to develop unit rates for the wastewater parameters and to allocate costs to the various user classes in proportion to the quantity of wastewater contributed and the strength of wastewater.

In this study, FY 07-08 is referred to as the "test year", therefore, FY 07-08 revenue requirements are used in the cost allocation process.

6.1 Cost of Service to be Allocated

The annual revenue requirements or costs of service to be recovered from charges for wastewater service consist of the elements of O&M expense and capital related costs. O&M expense includes cost directly related to the collection, treatment and disposal of wastewater, and maintenance of system facilities. Capital related costs represent routine capital outlays.

The test year cost of service to be recovered from wastewater service charges is estimated at $26,742,400. As shown in Table 6, the total cost of service comprises net operating expenses and capital costs are offset by other funds.

TABLE 6

Allocation of Revenue Requirements

Test Year 2008

Line No.		Operating Expense $	Capital and Other Costs $	Total $
	Total Revenue Requirements			
1	Operation & Maintenance Expense	28,154,600		28,154,600
2	Total Debt Service		0	0
3	Routine Capital Outlay		1,300,800	1,300,800
4	Bad Debt Write-offs	300,000		300,000
5	Transfer To Replacement Fund		1,392,400	1,392,400
6	Transfer To Storm Drain Fund	546,200		546,200
7	Subtotal	29,000,800	2,693,200	31,694,000
	Less Other Operating Revenue			
8	Other Revenues	393,100		393,100
9	Reimbursements and Transfers		399,200	399,200
10	Replacement Fee Revenue		1,392,400	1,392,400
11	Storm Drain Fee Revenue	546,200		546,200
12	Interest Income	121,700		121,700
13	Subtotal	1,061,000	1,791,600	2,852,600
	Adjustments			
14	Adjustment for Annual Cash Balance	2,884,900	(149,200)	2,735,700
15	Adjustment to Annualize Rate Increase	(636,700)		(636,700)
16	Subtotal	2,248,200	(149,200)	2,099,000
17	Cost of Service to be Recovered from Rates	25,691,600	1,050,800	26,742,400

In determining the annual cost of service revenues required from rates, revenues from other revenue sources such as miscellaneous revenue, Storm Drain Fee revenue, and Replacement Fee revenue are deducted from the appropriate cost element. In addition, adjustments are made to account for cash balances.

6.2 Wastewater Parameters

The total cost of sewer service is analyzed by system functions in order to equitably distribute costs of service to the various classes of customers.

For this analysis, sewer utility costs of service are assigned to three basic functional cost components (wastewater parameters)

- volume related costs
- strength related costs
- customer related costs

Functional cost components relate to services provided and not activities of the utility as set out in the O&M budget.

6.2.1 Volume Related Costs

- Volume costs are those which vary directly with the quantity of wastewater contributed and include:
- Capital costs related to the investment in the system facilities which are sized on the basis of wastewater volume,
- O&M expense related to those facilities, and
- The expense of treatment chemicals and electric power associated with the volume of wastewater treated.

6.2.2 Wastewater Strength Costs

- Consist of the O&M expense and capital costs related to wastewater treatment facilities designed to remove pollutants, (Metro)
- Are based principally on the amount of pollutants in the wastewater.
- Are further separated into COD and TSS.

6.2.3 Customer Costs

- Customer costs are those, which tend to vary in proportion to the number of customers served.
- These include billing and collection expenses and general administration.

The separation of costs of service into these principal components provides the means for further allocation of such costs to the various customer classes on the basis of their respective volume, strength, and customer requirements for service.

General Fund Transfers were previously allocated entirely to customer costs, but after changes to the accounting system due to the conversion to an enterprise fund allocation adjustments had to be made. Costs were rolled up differently and therefore costs that were previously volume related were rolled into the general fund transfer. To compensate for this the General Fund Transfer has been split between volume and customer costs. Those are the costs incurred by the City for transporting wastewater to Metro and billing customers which City overheads support.

6.3 Allocation to Wastewater Parameters

The allocation of O&M and capital costs to the wastewater parameters selected involves the following:

- Identification of functional O&M and capital costs of the wastewater system
- Determination of O&M and capital cost allocation percentages for the wastewater parameters

O&M expense items are allocated directly to appropriate cost components, while the allocation of capital costs is based upon a detailed allocation of related capital investment. The separation of costs into functional components provides a means for distributing such costs to the various classes of customers on the basis of their respective responsibilities for each particular type of service.

6.3.1 Allocation of Capital Costs

Capital costs include routine capital improvements. A reasonable method of assigning capital costs to functional components is to allocate such costs on the basis of the capital investment.

All of the City's facilities are designed only to convey wastewater. The City currently owns no facilities designed to treat wastewater. Hence all capital costs are allocated 100% to the volume component.

6.3.2 Allocation of Operating Expense

Projected net operating expense for the test year is allocated to cost components on the basis of an allocation of O&M expense as shown in Table 7. O&M expense for the test year is allocated to cost components in the same manner as capital costs, based on the design criteria of the plant facilities. The allocation of Metro costs is based on annual billing.

6.4 Allocation of Cost to Customer Classes

The total cost responsibility of each customer class may be estimated by distributing the cost of service allocated to functions in Tables 7 among the classes based on the respective service requirements of each class.

TABLE 7

Allocation of Operation and Maintenance Expense to Functional Cost Components

Test Year 2008

Line No.	Cost Component	Total Expense	Strength: Volume	Strength: COD	Strength: Suspended Solids	Customer
		$	$	$	$	$
	WW Support Services					
1	WW Engineering	541,900	0	0	0	541,900
2	WW Operations Admin	147,600	0	0	0	147,600
3	WW Maintenance	3,590,400	2,692,800	0	0	897,600
4	Lift Station/Pool Maint.	570,800	281,404	138,134	151,262	0
5	Sewer Billing and Collection	116,300	0	0	0	116,300
6	Sewer Svc Supplies and Services	112,700	0	0	0	112,700
7	Sewer Svc Risk Management	50,100	0	0	0	50,100
8	Transfer to General Fund	4,587,700	1,940,597	0	0	2,647,103
9	Transfer to 03 Refunding COP	21,000	21,000	0	0	0
10	**Total WW Support Services**	9,738,500	4,935,802	138,134	151,262	4,513,303
11	Metro Cost	17,273,300	8,515,737	4,180,139	4,577,425	0
12	Spring Valley	736,200	736,200	0	0	0
13	Other Professional Svc	50,600	50,600	0	0	0
14	Otay Water District Processing	356,000	175,508	86,152	94,340	0
15	**Total Operation & Maintenance**	28,154,600	14,413,846	4,404,424	4,823,027	4,513,303
16	Percent		51.20%	15.64%	17.13%	16.03%

The allocation of costs of service into the principal service requirement components (customer, volume and strength related) provides a means for further allocation of costs to the various customer classes on the basis of their respective volume and strength.

6.4.1 Customer Classifications

For purposes of cost of service analysis and rate design, sewer customers are classified to reflect groups of customers with similar service requirements and who are served at a similar average cost. Sewer customers are currently separated by the City into the following classes:

- Single-Family Residential (includes low-income residential)
- Multi-Family Residential (includes mobile homes)
- Commercial – Low Strength

- Commercial – Medium Strength
- Commercial – High Strength
- Special Users (includes High Volume Users and Variance Accounts)

6.4.2 Units of Service

The determination of customer class responsibility for costs of service requires that each general customer class be allocated a portion of the volume, strength and customer costs of service according to its respective service requirements, and that all costs directly associated with a specific customer class be allocated to that class.

The estimated test year service requirements or units of service for the various customer classes are shown in Table 8. Cost responsibility by customer class is based on each class' share of units of service. That is, if a class contributed one-third of the wastewater flow it will be assigned one-third of volume related costs. The same is done for strength-related costs and customer costs. Metered water and wastewater data for FY 05-06 and partial FY 06-07 flows were used to estimate customer usage by customer category and to balance total wastewater plant loadings. Equivalent units in column 5 reflect additional dwelling units as well as an adjustment for larger meter sizes.

TABLE 8

Estimated Units of Service

Test Year 2008

Line No.	Customer Class	(1) Wastewater Volume hcf	(2) Strength COD lbs	(3) Strength Suspended Solids lbs	(4) Number of Accounts	(5) Equivalent Units
	Residential					
1	Single-Family	4,694,000	16,408,000	4,834,500	43,300	43,300
2	Multi-Family	1,756,800	6,140,900	1,809,400	2,252	6,036
3	Mobile Homes	0	0	0	0	0
	Non-Residential					
4	Commercial - Low	699,900	2,446,600	720,900	1,435	3,465
5	Commercial - Medium	138,800	866,400	303,200	201	461
6	Commercial - High	156,000	1,947,100	681,500	196	471
7	Low Income	0	0	0	0	0
8	Golf Courses Club Houses	0	0	0	0	0
7	Special Users	290,000	905,000	271,500	161	1,053
8	Total	7,735,500	28,714,000	8,621,000	47,545	54,786

Estimates of the wastewater volume of each class are based upon water usage records and include an estimated return factor for water reaching the wastewater system. The estimated total wastewater volume for test year 2008 is 7,735,500 HCF. Infiltration is not included, but the return factor for single-family users has been reduced from 100% to 90% to account for incidental outside water usage during the winter period that does not return to the sewer. Estimated strengths and return factors used in this study are shown in Table 9.

TABLE 9

Wastewater Characteristics

	Wastewater Strengths		
Customer Classification	**Return Factor %**	**COD mg/L**	**TSS mg/L**
Single- Family Residential (1)	90	560	165
Multi-Family Residential	79	560	165
Mobile Homes	84	560	165
Commercial - Low	90	560	165
Commercial - Medium	90	1000	350
Commercial - High	90	2000	700
Special Users	Varies	varies	varies

(1) Winter period usage.

6.4.3 Unit Costs of Service

Table 10 shows the development of the test year unit costs for each of the wastewater parameters. The test year net O&M expense is allocated to volume, COD, TSS, and customer based on the O&M allocation percentage shown in Line 16 of Table 7. Capital costs are recovered through a separate fee and are therefore excluded from this analysis. The unit costs of service shown in Line 5 of Table 10 are developed by dividing Line 3 by Line 4.

TABLE 10

Development of Unit Costs

Test Year 2008

Line No.		Total	Volume	Strength		Customer
				COD	Suspended Solids	
		$	$	$	$	$
1	Net Operating Expense	25,691,600	12,345,700	4,404,400	4,823,000	4,118,500
2	Capital Costs	1,050,800	1,050,800	0	0	0
3	Total Cost of Service	26,742,400	13,396,500	4,404,400	4,823,000	4,118,500
4	Total Units of Service		7,735,500 hcf	28,714,000 pounds	8,621,000 pounds	54,786 Eq. meters
5	Total Unit Costs of Service - $/unit		1.7318	0.1534	0.5594	75.1739

6.5 Customer Class Costs of Service

The cost responsibility of each customer class is determined by applying the unit cost of service shown in Table 10 to the units of service estimated for a class (shown in Table 8). The cost of service allocated to each customer class is summarized in Table 11.

Table 12 shows a comparison of the cost of service for each customer class with revenue under existing rates, indicating the impact of cost of service allocation on each class. A 5.0 percent annualized increase in the level of sewer revenue is needed to meet the projected revenue requirements for FY 07-08. The cost of service analysis ensures that the test year 2008 revenue requirement of $26,742,400 is met.

The result of the cost of service analysis is very informative. Table 12 shows that most customers have been paying close to their fair share of cost of service. The table indicates that single-family, multi-family, commercial and special-user customers cost allocation does not match their cost allocation and needs to be revised. .

TABLE 11

Allocation of Costs of Service to Customer Classes

Test Year 2008

Line No.		Total	Volume	Strength COD	Strength Suspended Solids	Customer
		$	$	$	$	$
1	Unit Cost of Service		1.7318	0.1534	0.5594	75.1739
	Residential					
	Single-Family					
2	Units		4,694,000	16,408,000	4,834,500	43,300
3	Cost - $	16,605,700	8,129,200	2,516,700	2,704,800	3,255,000
	Multi-Family					
4	Units		1,756,800	6,140,900	1,809,400	6,036
5	Cost - $	5,450,400	3,042,400	942,000	1,012,200	453,800
	Non-residential					
	Commercial - Low					
6	Units		699,900	2,446,600	720,900	3,465
7	Cost - $	2,251,200	1,212,100	375,300	403,300	260,500
	Commercial - Medium					
8	Units		138,800	866,400	303,200	461
9	Cost - $	577,500	240,400	132,900	169,600	34,600
	Commercial - High					
10	Units		156,000	1,947,100	681,500	471
11	Cost - $	985,500	270,200	298,700	381,200	35,400
	Special Users					
12	Units		290,000	905,000	271,500	1,053
13	Cost - $	872,100	502,200	138,800	151,900	79,200
14	Total Cost of Service - $	26,742,400	13,396,500	4,404,400	4,823,000	4,118,500
15	Total Units of Service		7,735,500	28,714,000	8,621,000	54,786

TABLE 12

Comparisons of Allocated Costs of Service with Revenue Under Existing Rates

Test Year 2008

Line No.	Customer Class	Total Cost of Service $	Revenue Under Existing Rates $	Indicated Revenue Increase (Decrease) %
	Residential			
1	Single-Family*	16,605,700	16,484,300	0.7%
2	Multi-Family	5,450,400	4,903,100	11.2%
	Non-Residential			
3	Commercial - Low	2,251,200	2,034,000	10.7%
4	Commercial - Medium	577,500	504,100	14.6%
5	Commercial - High	985,500	834,300	18.1%
6	Special Users	872,100	709,200	23.0%
7	Total	26,742,400	25,469,000	5.0%

* includes 250 low-income users

Section 7
Rate Design

In general, class cost of service allocations serve as a "guide" to the necessity for, and extent of, rate adjustments. Other considerations such as the change from previous rate levels, public reaction to rate changes, past local policies and practices, and local regulations may modify indicated cost of service adjustments. The end result of any rate adjustment process, however, should be rate schedules, which are simple to apply, clearly understood, and as equitable to each customer class as possible.

7.1 Proposed Sewer Rates

The cost of service analysis provides the basis for adjusting sewer service charges. The cost of service allocation study provides the unit costs of service used in the rate design process and gives a basis for determining whether resultant rates will recover costs of service from customer classes and provide the total level of revenue required.

Table 13 presents the Proposed Rate Schedule for FY 2008 compared to Adopted 2008 rates. The Proposed 2008 Rates for Single-Family Residential Customers shown at the right do not appear to vary much from the Adopted 2008 Rates but careful examination shows that both the fixed Sewer Service Fee and the variable charge is slightly higher. However, the fixed Sewer Facilities Replacement Fee has been eliminated based on a cost of service analysis performed by City staff and replaced with a variable fee. The results of these changes can be seen in typical bills shown in Table 17 discussed below.

TABLE 13

Existing and Proposed Rate Schedule

Single-Family Residential	**Adopted 2008**		**Proposed 2008**	
	Fixed Service Fee	Variable Fee	Fixed Service Fee	Variable Fee
Sewer Service Fee	6.33	2.53	6.65	2.81
Sewer Facilities Replacement Fee	1.97	-	-	0.18
Storm Drain Fee	0.70	-	0.70	-
SFR - Sewer Rate	9.00	2.53	7.35	2.99

Commercial - Low Strength	**Adopted 2008**		**Proposed 2008**	
	Fixed Service Fee	Variable Fee	Fixed Service Fee	Variable Fee
Sewer Service Fee	Varies	2.53	Varies	2.81
Sewer Facilities Replacement Fee		0.11		0.18
Storm Drain Fee		0.06		0.06
Commercial LS- Sewer Rates	Varies	2.70	Varies	3.05

Table 13 also provides an illustration of how Low-Strength Commercial Customer Fees vary from Single-Family Residential. The Sewer Service Fees vary by meter size and the Sewer Facilities Replacement and the Storm Drain Fees are both collected

from a variable fee. The net effect of this can be seen by comparing the bottom lines of the two customers, which shows the combined sewer rates.

7.2 Appeal Process

The sewer variance review process ("appeal process") was amended in 2005 to provide a mechanism for single-family residences to ask for a re-evaluation of their sewer bill. This was done because some customers believed that their water usage was not accurately evaluated due to a leak, excessive landscaping, or pool maintenance, and that one or more of these elements affected their sewer service charges.

The proposed rates incorporate a 90 percent return to sewer (return factor) for single-family dwellings. This return factor takes into account the 10 percent of water used during the winter period for purposes other than domestic use therefore reducing the need for the appeals process. However, those residents who experience a leak during the winter averaging period, and determine that their winter average may have been impacted by the leak will still have an opportunity to apply for an adjustment.

7.3 Rate Revenue Comparison

Table 14 presents a summary of the revenue under the existing rates, cost of service and revenue under proposed rates for each customer class for test year 2008. The table shows that the proposed rate schedule will fairly recover the cost of providing sewer service from all of the customer class**.** Adoption of the proposed rates would cause varying charge increases for certain users.

TABLE 14

Comparison of Customer Revenue Under Proposed Rates

With Test Year Cost of Service

Test Year 2008

Line No.	Customer Class	Test Year 2008 Cost of Service	Revenue Under Existing Rates	Proposed Rates: Estimated Revenue Under Proposed Rates	Proposed Rates: As a Pecent of Cost of Service
		$	$	$	%
	Residential				
1	Single-Family	16,605,700	16,484,300	16,643,600	100.2
2	Multi-Family	5,450,400	4,903,100	5,418,100	99.4
	Non-Residential				
3	Low	2,251,200	2,034,000	2,243,000	99.6
4	Medium	577,500	504,100	576,600	99.8
5	High	985,500	834,300	981,400	99.6
6	Special Users	872,100	709,200	878,700	100.8
7	Total	26,742,400	25,469,000	26,741,400	100.0

7.4 Proposed Rates

The calculated rates needed to meet the obligation of the sewer service revenue fund for FY 07-08 through FY 11-12 are shown in Table 15 below and illustrate the rate changes for all customer classes. The rates in Table 15 exclude the Storm Drain and Sewer Facilities Replacement Fees. Table 16 shows the proposed Rate Schedule for FY 07-08 through FY 11-12, which includes the Storm Drain and Sewer Facilities Replacement Fees. These are the rates recommended for adoption.

TABLE 15

Proposed Rate Schedule for Fiscal Years 2008 Through 2012

	2008	2009	2010	2011	2012
Meter	Monthly Service Charge (1)				
Size	$/month	$/month	$/month	$/month	$/month
Single-Family Residential	6.65	7.30	8.03	8.31	8.31
All Others (Meter Size in Inches)					
5/8	6.65	7.30	8.03	8.31	8.31
3/4	6.65	7.30	8.03	8.31	8.31
1	11.08	12.17	13.38	13.85	13.85
1 1/2	22.16	24.35	26.76	27.70	27.70
2	35.45	38.96	42.81	44.31	44.31
3	66.47	73.05	80.28	83.09	83.09
4	110.78	121.74	133.79	138.48	138.48
6	221.55	243.48	267.59	276.95	276.95
8	354.48	389.57	428.14	443.13	443.13
	Volume Charge (1)				
	$/hcf	$/hcf	$/hcf	$/hcf	$/hcf
Residential					
Single Family	2.81	3.09	3.39	3.51	3.64
Multi-Family	2.81	3.09	3.39	3.51	3.64
Mobile Homes	2.81	3.09	3.39	3.51	3.64
Non-Residential					
Commercial - Low	2.81	3.09	3.39	3.51	3.64
Commercial - Medium	3.89	4.28	4.70	4.86	5.03
Commercial - High	6.05	6.65	7.31	7.56	7.83
Special Users	Varies	Varies	Varies	Varies	Varies
Total Revenue	26,105,700	29,691,400	32,964,900	34,467,300	36,040,100

(1) Does not includes the Sewer Facilities Replacement Fee and Storm Drain Fee

TABLE 16

Proposed Rate Schedule for Fiscal Years 2008 Through 2012

	2008	2009	2010	2011	2012
Meter	Monthly Service Charge (1)				
Size	$/month	$/month	$/month	$/month	$/month
Single-Family Residential	7.35	8.00	8.73	9.01	9.01
All Others					
5/8	6.65	7.30	8.03	8.31	8.31
3/4	6.65	7.30	8.03	8.31	8.31
1	11.08	12.17	13.38	13.85	13.85
1 1/2	22.16	24.35	26.76	27.70	27.70
2	35.45	38.96	42.81	44.31	44.31
3	66.47	73.05	80.28	83.09	83.09
4	110.78	121.74	133.79	138.48	138.48
6	221.55	243.48	267.59	276.95	276.95
8	354.48	389.57	428.14	443.13	443.13
	Volume Charge (1)				
	$/hcf	$/hcf	$/hcf	$/hcf	$/hcf
Residential					
Single-Family	2.99	3.27	3.57	3.69	3.82
Multi-Family	3.05	3.33	3.63	3.75	3.88
Mobile Homes	3.05	3.33	3.63	3.75	3.88
Non-Residential					
Commercial - Low	3.05	3.33	3.63	3.75	3.88
Commercial - Medium	4.13	4.52	4.94	5.10	5.27
Commercial - High	6.29	6.89	7.55	7.80	8.07
Special Users	2.98	3.33	3.63	3.75	3.88

(1) Includes the Sewer Facilites Replacement Fee and Storm Drain Fee

Table 17 shows that the sample monthly bills for single-family residential customers for FY 07-08 through FY 11-12. The proposed charges include the $0.70 per month Storm Drain Charge and the $0.18 per HCF Facilities Replacement Charge.

Column 1 is the winter period water usage. The typical customer uses about 10 HCF. However due to the reduced return factor the typical customer will only be billed for 9 HCF effective January 1, 2008. Column 2 of Table 17 shows the monthly sewer bill for single-family residential customers with usage ranging from zero to 20 HCF under existing rates. With the current cap set at 20 HCF, usage above 20 HCF is charged for only 20 HCF. Column 3 shows what the wastewater bill is effective July 1, 2008 under the rates already adopted. The fourth column indicates sewer bills based on Proposed 2008 Rates to be effective January 1, 2008. The remaining columns show single-family residential typical bills for FY 2009 to FY 2012.

TABLE 17

Comparison of Typical Single-Family Residential Monthly Sewer Bills

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	FY 2008 Adopted	FY 2008 Proposed	FY 2009 Proposed	FY 2010 Proposed	FY 2011 Proposed	FY 2012 Proposed
Usage hcf/mo.	Charge $	Charge $	Charge $	Charge $	Charge $	Charge $
0	9.00	7.35	8.00	8.73	9.01	9.01
1	11.53	10.04	10.95	11.94	12.33	12.44
2	14.06	12.73	13.89	15.16	15.66	15.88
3	16.59	15.42	16.83	18.38	18.98	19.31
4	19.12	18.11	19.77	21.59	22.30	22.75
5	21.65	20.80	22.71	24.81	25.63	26.18
6	24.18	23.49	25.65	28.03	28.95	29.61
7	26.71	26.18	28.59	31.24	32.27	33.05
8	29.24	28.87	31.54	34.46	35.60	36.48
9	31.77	31.57	34.48	37.68	38.92	39.92
10	34.30	34.26	37.42	40.89	42.24	43.35
11	36.83	36.95	40.36	44.11	45.57	46.78
12	39.36	39.64	43.30	47.33	48.89	50.22
13	41.89	42.33	46.24	50.54	52.21	53.65
14	44.42	45.02	49.18	53.76	55.54	57.09
15	46.95	47.71	52.13	56.98	58.86	60.52
16	49.48	50.40	55.07	60.19	62.18	63.96
17	52.01	53.09	58.01	63.41	65.51	67.39
18	54.54	55.78	60.95	66.63	68.83	70.82
19	57.07	58.48	63.89	69.84	72.15	74.26
20	59.60	61.17	66.83	73.06	75.48	77.69

7.5 Rate Comparisons

CDM performed a survey of wastewater charges in cities in San Diego County and the results are presented in Figure 3 below. The figure clearly shows rates in Chula Vista are on the low end in the County.

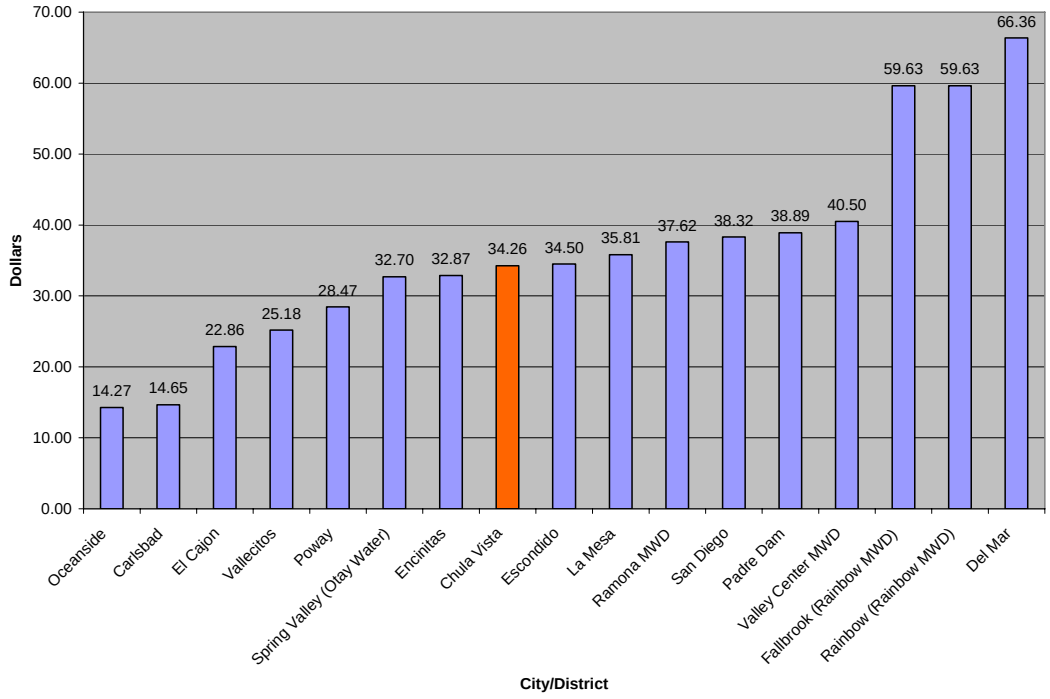


Figure 3 – Monthly Sewer Bill Comparison